# ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಕಲಬುರಗಿ.

ಜ್ಞಾನ ಗಂಗಾ, ಕಲಬುರಗಿ–585 106, ಕರ್ನಾಟಕ, ಭಾರತ

(ಕರ್ನಾಟಕ ರಾಜ್ಯ ವಿಶ್ವವಿದ್ಯಾಲಯಗಳ ಅಧಿನಿಯಮ 1976ರನ್ವಯ 10–09–1980 ರಂದು ಸ್ಥಾಪಿಸಲಾದ ವಿಶ್ವವಿದ್ಯಾಲಯ ಮತ್ತು 2000ರ ಅಧಿನಿಯಮದ ಅಡಿಯಲ್ಲಿ ಬದಲಾಯಿಸಿದಂತೆ)

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ವಿದ್ಯಾಮಂಡಲ


ಕ್ರ.ಸಂ.ಗುವಿಕ/ವಿಮವಿ/ಬಿಓಎಸ್/2024–25/ 177 ದಿನಾಂಕ: 23/7/24

## ಅಧಿಸೂಚನೆ

ವಿಷಯ: ಸ್ನಾತಕ ಪದವಿ ಕೋರ್ಸಿನ **ಸಸ್ಯಶಾಸ್ತ್ರ ವಿಷಯದ** ಪಠ್ಯಕ್ರಮ ಅನುಮೋದಿಸಿ 2024–25ನೇ ಶೈಕ್ಷಣಿಕ ಸಾಲಿನಿಂದ ಜಾರಿಗೊಳಿಸಿದ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ:1. ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ. ಇಡಿ 166 ಯುಎನ್ಇ 2023 ಬೆಂಗಳೂರು, ದಿನಾಂಕ: 08.05.2024
2. ಸಸ್ಯಶಾಸ್ತ್ರ ವಿಷಯದ ಸ್ನಾತಕ ಅಧ್ಯಯನ ಮಂಡಳಿಯ ನಿರ್ಣಯ ದಿನಾಂಕ: 19.06.2024
3. ವಿಜ್ಞಾನ ನಿಕಾಯಗಳ ಸಮಿತಿ ಸಭೆಯ ನಿರ್ಣಯ ದಿನಾಂಕ: 11.07.2024
4. ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ಸಭೆಯ ಅನುಮೋದನೆ ದಿನಾಂಕ: 15.07.2024
5. ಮಾನ್ಯ ಕುಲಪತಿಗಳ ಅನುಮೋದನೆ ದಿನಾಂಕ:19.07.2024

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ಸರ್ಕಾರದ ನಿರ್ದೇಶನದಂತೆ, 2024–25ನೇ ಶೈಕ್ಷಣಿಕ ಸಾಲಿನಿಂದ ಜಾರಿಗೊಳಿಸಿರುವ ಸ್ನಾತಕ ಪದವಿ ಪಠ್ಯಕ್ರಮವನ್ನು ಜಾರಿಗೊಳಿಸಬೇಕಾಗಿರುವ ಪ್ರಯುಕ್ತ **ಸಸ್ಯಶಾಸ್ತ್ರ ವಿಷಯದ** ಅಧ್ಯಯನ ಮಂಡಳಿಯು ಪಠ್ಯಕ್ರಮವನ್ನು ಪರಿಷ್ಕರಿಸಿ ಶಿಫಾರಸ್ಸು ಮಾಡಿರುವುದರಿಂದ ಸದರಿ ಪಠ್ಯಕ್ರಮವನ್ನು ವಿಜ್ಞಾನ ನಿಕಾಯದ ಸಭೆಯಲ್ಲಿ ಒಪ್ಪಗೆ ಪಡೆದಿರುವಂತೆ, ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ಸಭೆಯ ಅನುಮೋದನೆಯಂತೆ ಪದವಿ ಕೋರ್ಸಿನ **ಸಸ್ಯಶಾಸ್ತ್ರ ವಿಷಯದ** ಸ್ನಾತಕ ಪಠ್ಯಕ್ರಮವನ್ನು 2024–25ನೇ ಶೈಕ್ಷಣಿಕ ಸಾಲಿನಿಂದ ಅನ್ವಯವಾಗುವಂತೆ ಜಾರಿಗೊಳಿಸಲಾಗಿದೆ.

ಈ ಮಾಹಿತಿಯನ್ನು ಸಂಬಂಧಪಟ್ಟ ಶಿಕ್ಷಕರ ಹಾಗೂ ವಿದ್ಯಾರ್ಥಿಗಳ ಗಮನಕ್ಕೆ ತರಲು ಸೂಚಿಸಲಾಗಿದೆ. ಪಠ್ಯಕ್ರಮದ ವಿವರಗಳನ್ನು ಗುಲಬರ್ಗ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್‌ಸೈಟ್ www.gug.ac.in ದಿಂದ ಪಡೆಯಬಹುದಾಗಿದೆ.

ಕುಲಸಚಿವರು
ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಕಲಬುರಗಿ

ಗೆ,

1. ಮುಖ್ಯಸ್ಥರು, **ಸಸ್ಯಶಾಸ್ತ್ರ ವಿಷಯದ** ವಿಭಾಗ, ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಕಲಬುರಗಿ.
2. ಎಲ್ಲಾ ಪದವಿ ಕಾಲೇಜುಗಳ ಪ್ರಾಂಶುಪಾಲರುಗಳಿಗೆ.

ಪ್ರತಿಗಳು:

1. ಡೀನ್‌ರು, ಕಲಾ ನಿಕಾಯ, ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಕಲಬುರಗಿ ರವರ ಮಾಹಿತಿಗಾಗಿ.
2. ಕುಲಸಚಿವರು (ಮೌಲ್ಯಮಾಪನ) ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಕಲಬುರಗಿ
3. ನಿರ್ದೇಶಕರು, ಪಿಎಂಇಬಿ ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಕಲಬುರಗಿ ರವರ ಮಾಹಿತಿಗಾಗಿ.
4. ಗ್ರಂಥಪಾಲಕರು, ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಕಲಬುರಗಿ ರವರ ಮಾಹಿತಿಗಾಗಿ.
5. ವಿಜ್ಞಾನ ನಿಕಾಯದ ಎಲ್ಲಾ ಅಧ್ಯಯನ ವಿಭಾಗಗಳ ಮುಖ್ಯಸ್ಥರಿಗೆ ಗು.ವಿ. ಕಲಬುರಗಿ
6. ಸಂಯೋಜಕರು, ಟಾಸ್ಕ್‌ಫೋರ್ಸ್ ಸಮಿತಿ, ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಕಲಬುರಗಿ ರವರ ಮಾಹಿತಿಗಾಗಿ.
7. ವಿಶೇಷಾಧಿಕಾರಿಗಳು, ಆಡಳಿತ, ವಿದ್ಯಾಮಂಡಲ, ಪರೀಕ್ಷಾ, ಅಭಿವೃದ್ಧಿ ಗು.ವಿ. ಕಲಬುರಗಿ ರವರ ಮಾಹಿತಿಗಾಗಿ.
8. ಮುಖ್ಯಸ್ಥರು, ಗಣಕ ಕೇಂದ್ರ, ಗು.ವಿ. ಕಲಬುರಗಿ ರವರಿಗೆ ವೆಬ್‌ಸೈಟ್‌ನಲ್ಲಿ ಪ್ರತ್ಯೇಕ ಪೋರ್ಟಲ್‌ನಲ್ಲಿ ಪ್ರಕಟಿಸಲು ಸೂಚಿಸಲಾಗಿದೆ.
9. ನೋಡಲ್ ಅಧಿಕಾರಿಗಳು, UUCMS, ಗು.ವಿ.ಕಲಬುರಗಿ ಇವರ ಮಾಹಿತಿಗಾಗಿ
10. ಕುಲಪತಿಗಳ ಆಪ್ತ ಕಾರ್ಯದರ್ಶಿ/ಕುಲಸಚಿವರ ಆಪ್ತ ಸಹಾಯಕರ ಗು.ವಿ. ಕಲಬುರಗಿ ರವರ ಮಾಹಿತಿಗಾಗಿ.

# Gulbarga University

Department of Botany

Jnanaganga, Kalaburagi-585106, Karnataka, India

Phone No. 08472-263291

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GUK/BOT/2024-25/ 197

REGISTRAR OFFICE
ಕುಲಸಚಿವರ ಕಾರ್ಯಾಲಯ
ಸಂ. 3362
11 JUL 2024
Gulbarga University Kalaburagi
ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ ಕಲಬುರಗಿ

Date: 11.07.2024

ACA

To,
The Registrar
Gulbarga University,
Kalaburagi.

**Sub: Submission of UG-BOS proceedings and new Syllabus for B.Sc I & II –reg.**

Sir,

With reference to the subject, I bring to your notice that the BOS meeting for undergraduate program in Botany at Gulbarga University, Kalaburagi was held on 19.06.2024 in the Department of Botany and as per the guidelines given, six DSC and two electives courses of Botany for B.Sc program were approved. The syllabi for semester I and II have been designed and approved. The practical components and the pattern for internal and semester end examinations have also been approved. I am here with submitting you the proceedings of the BOS meeting along with the Course structure and syllabus for B.Sc Semester I and II to be implemented from 2024-25 at Gulbarga University for further needful.

Thanking you,

Yours faithfully

G M Vidyasagar
Chairman

PROFESSOR & CHAIRMAN
DEPARTMENT OF P.G. STUDIES
& RESEARCH IN BOTANY
Gulbarga University Kalaburagi

**Gulbarga University**
Department of Botany
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Date: 19.06.2024

**Proceedings of the Board of Studies meeting in Botany for undergraduate program held on 19.06.2024 at 11.00am in the Dept of Botany, Gulbarga University, Kalaburagi.**

**Members present**

1. Dr. Shaila Hiremath
2. Dr. Latadevi Karekal (Co-opt)
3. Dr. Rajsekhar B (C0-0pt)
4. Dr. Rajkumar H G (Online)
5. Dr. G M Vidyasagar

**Members absent**

1. Dr. Suresh H R
2. Sri. Dharam Reddy S S

**Agenda**

**To design the syllabus of Botany for undergraduate program at Gulbarga University, Kalaburagi to be effective from 2024-2025.**

The board chairmen welcomed the members and placed the agenda for discussion and design of syllabus of Botany for B.Sc program.

1. Based on the curriculum framework and guidelines provided, the board has approved the titles of six courses for semester I, II III,IV, V and VI and designed the syllabus under course DSC I B and DSC II B for B.Sc program. The titles for Elective 1 and 2 courses were also approved.

   DSC I B: Microbial Diversity and Plant pathology.
   DSC II B: Diversity of Non-Flowering Plants.
   DSC III B: Plant Anatomy and Developmental Biology.
   DSC IV B: Plant Systematics, Ecology and Phytogeography.
   DSC V B: Cell and molecular Biology, Genetics and Plant breeding
   DSC IV B: Plant Physiology and Plant Biotechnology
   Elective 1: Herbal technology
   Elective 2: Organic farming

2. The Course Learning Objectives and Course Objectives were prepared based on the contents of Courses DSC I B and DSC II B and Approved.

3. List of practicals under courses DSC I B and DSC II B were designed and approved.

4. Model question papers for practical examination in Botany were prepared and approved.

5. As per the guidelines, the model formative assessment/internal assessment was verified and approved.

6. Question paper pattern for theory examinations was verified and approved.

1) 2) 3)

Professor & Chairman
Department of P.G. Studies
& Research in Botany
Gulbarga University Kalaburagi-585106
Karnataka

# GULBARGA UNIVERSITY

**KALABURAGI**

## FACULTY OF SCIENCE AND TECHNOLOGY

**Syllabus for**

# Master of Science

In

# BOTANY

**(New Scheme)**

**(With effect from Academic Year 2024-25 and Onwards)**

## DEPARTMENT OF POST GRADUATE STUDIES AND RESEARCH IN BOTANY

**2024**

# GULBARGA UNIVERSITY, KALABURAGI

NEW CURRICULUM STRUCTURE OF BOTANY FOR UNDERGRADUATE PROGRAM
EFFECTIVE FROM 2024-25 AND ONWARDS

| Sl. No. | Semesters | Paper Titles | Paper code |
|---|---|---|---|
| 1 | Semester-I | Microbial Diversity and Plant pathology. | **DSC -1B** |
| 2 | Semester-II | Diversity of Non Flowering Plants. | **DSC -2B** |
| 3 | Semester-III | Plant Anatomy and Developmental Biology. | **DSC -3B** |
| | Elective-1 | Herbal technology | |
| 4 | Semester-IV | Plant Systematics, Ecology and Phytogeography. | **DSC-4B** |
| | Elective-2 | Organic farming | |
| 5 | Semester-V | Cell and molecular Biology, Genetics and Plant breeding | **DSC -5B** |
| 6 | Semester-VI | Plant Physiology and Plant Biotechnology | **DSC -6B** |

## B.Sc.: Semester I. BOTANY

### Course DSC 1B (Theory): Microbial Diversity and Plant Pathology

(Credits-4, No. of teaching hours-48 & 4h/week)

**Course Learning Objectives**

a. To study the history, distribution and structure of micrbes along with their economic impotance
b. To study history and the methodology involved in microbiology.
c. To study the classification, structures, reproduction and economic importance of viruses and bacteria.
d. To study the structure and reproduction in bacteria and lichens and their applications.
e. To study the basic concept, etiology and control measures of important plant diseases.

**Course Outcome:**

1. The students will be able to study the microbes in laboratory and understand their importance in human welfare.
2. The students will understand the history and methodology involved in microbial studies.
3. The students will understand the structures of viruses and bacteria and their role in agriculture and industry.
4. The students will understand the structure and reproduction in fungi and they will be able to use the fungi in industries for valuable products.
5. The students will be able to identify different plant diseases and apply suitable control measures.

**Unit–I** **12 h**

**Microscopy and stains:** Working principle and applications of light, darkfield, phase contrast microscope and electron microscopes (SEMandTEM).Microbiological stains, acidic, basic and special stains, Gram's staining technique..

**Microbial d**iversity: distribution of microbes in soil, water, air and food. Hierarchical level of organization:Whittaker's five-kingdom system and Carl Richard Woese's three-domain system. Significance of microbiology.

**Brief history and Contributions of Microbiologists-**Leeuwenhoek, Louis Pasteur and Robert Koch. **Mycologist-** Edwin John Butler, K.C.Mehta and B.B. Mundkur.

**Unit–II** **12 h**

**Viruses:** General characters, ICTV system of classification. Structure & multiplication of TMV and Bacteriophage (T2) (Lytic and lysogenic methods). Brief account on SARS-COV-2. Economic importance of viruses. **Vaccines**- Introduction, types and applications.

**Brief account on Viroids, prions and Mycoplasmas**, Potato Spindle TuberViroid (PSTV), Brief account on Sandal spike disease.

**Bacteria-** General characters, Classification, Ultrastructure, chemistry of cell wall and reproduction (transformation, conjugation and transduction methods). Role of bacteria and cynobacteria in agriculture (Biofertilizers) and pharmaceutical industries.

**Unit–III** **12 h**

**Fungi-**General characteristics, classification (Alexopolus), structure and reproduction of, *Albugo, Rhizopus, Agaricus, Penicillium,* and *Cercospora.* Role of fungi in alcohol production, bread making, drug production & food processing. Brief account on **VAM Fungi** and their significance.

**Lichens-** Types, habitat, morphology, classifications, structure and reproduction. Economic importance of lichens.

**UnitIV** **12 h**

**Plant Pathology-** Inroduction, definition, terminology, disease triangle, Koch's postulate. Symptoms, etiology, causal organisms and control measures of Leaf curl of Papaya, and Bunchy top of Banana, Citrus canker, Angular leaf spot of Cotton, Sandal spike disease, Downy Mildew of Bajra,Grain smut of Sorghum, stem rust of wheat, Red rot of sugarcane and Wilt of pigeon pea. Biological control of plant diseases.

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2. AroraDR.2004.TextbookofMicrobiology,CBS, New Delhi.
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4. DubeyRCandMaheshwariDK.2002.ATextbookofMicrobiology,S Chandand Company, Ltd. Ramnagar, New Delhi.
5. SharmaR.2006.Text bookofMicrobiology.Mittal Publications, NewDelhi.
6. Sharma PD. 1999. Microbiology and Plant Pathology. Rastogi publications. Meerut, India.
7. VasanthkumariR.2007. AtextbookofMicrobiology, BIPublicationsPvt. Ltd., New Delhi.
8. V.Singh, Pandey and Jain. A Text book of Lower Botany. Rastogi Publication Meerut.
9. Alexopoulos CJ and Mims CW. 1989. IntroductoryMycology, WileyEastern Ltd. NewDelhi.
10. B.P.Pandey plant pathology S Chand and Company, Ltd. Ram nagar, New Delhi.


## Course DSC 1B (Practical): Microbial Diversity and Plant Pathology

(Credits-2, No. of teaching hours-48 & 4h/week)

1. Sterilization, Preparation of stains and growth media.
2. Simple staining of bacteria (Crystal violet) Gram's staining of Lactobacillus bacteria from butter milk.
3. Isolation and identification of fungi and bacteria from soil using serial dilution method.
4. Isolation and study of *Rhizobium* from root nodules of legumes.
5. Isolation and identification of *Trichoderma* from soil.
6. Microbial production of citric acid, alcohol and enzymes.
7. Study of vegetative and reproductive structures of specimens/slides of *Albugo, Rhizopus, Agaricus, Penicillium and Cercospora.*
8. Study of well-known Microbiologist/Mycologist and their contributions through charts and photographs as mention in theory.
9. Study of plant diseases as per theory syllabus.

**Note: The students shall submit a report on Field visit along with 5 specimens of local plants diseases.**

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**Model Question Paper for Practical examinations**

**B.Sc.- I Semester Practical Examination, ----year**
**Sub-BOTANY**
**Course -DSC 1B : Microbial Diversity and Plant Pathology**

**Time:3 Hours** **Max. Marks: 40**

| | |
|---|---|
| Q I. Perform the major experiment A, record the observations and show to the examiners. | 08 marks |
| **Q II.** Perform the minor experiment/Demonstrate **B,** record the observations and show to the examiners. | 05 marks |
| **Q III.** Identify the specimen and critically comment on C,D, E & **F** | 12 Marks |
| **Q IV.** Identify and comment on the slides/specimen G, **H, I, & J.** | **08** Marks |
| **Q V.** Viva voce. | **02** Marks |
| **Q VI.** Submissions | **02** Marks |
| Q VII. Records | 03 Marks |

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**General instructions:**

Q1. A : Major experiment

Q2. B- Gram staining of bacteria/ sterilization, media/stain preparations

Q3. C- Viral disease d-Bacterial disease, E-Fungal disease, F-Mycorrhizae or Biopestides,

Q 4. G-Fungal slide, H-Scientist photograph, I &J- industrial products

Q 5.Viva voce

Q 6. Submissions

Q 7.Records

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## B.Sc.: Semester II. BOTANY

### Course DSC 2B (Theory): Diversity of Non-Flowering Plants

(Credits-4, No. of teaching hours-48 & 4h/week)

**Course Learning Objectives**

1. To study the diversity and affinities of Algae, Bryophytes, Pteridophytesand Gymnosperms.
2. To study the classifications, thallus organization, and reproduction of algae and their economc importance.
3. To study the morphology, anatomy, reproduction in Bryophytes and their ecological and economic importance.
4. To study the classification; morphology, anatomy and reproduction in Pteridophytes along with the concepts of stellar evolution, heterospory and telome.
5. To study the classification, morphology, anatomy and reproduction in Gymnosperms along with their applications, geological time scale and paleobotany

**Course Outcome:**

At the end of course, the students will be able to understand,

a. the diversity and affinities of Algae, Bryophytes, Pteridophytesand Gymnosperms
b. classifications, thallus organization, and reproduction in algae and their economc importance
c. classification, morphology, anatomy, reproduction and life-cycles of Bryophytes and their ecological and economic importance.
d. Classification, morphology, anatomy and reproduction in Pteridophytes along with their economic importance, concepts of stellar evolution, heterospory and telome.
e. classification, morphology, anatomy, reproduction and life-cycles in Gymnosperms along with their economic importance, geological time scale and paleobotany.

**Unit-I** **12 h**

**Algae** –General characteristics, Classification, habitat, thallus organization and alternation of generation in Fresh water and marine algae. Algal Cultivation: Basic cultivation techniques of microalgae. Algal products: Food (SCP) and nutraceuticals, feed stocks, food colorants, therapeutics and cosmetics. Algal bloom and toxins.

**Unit–II** **12 h**

**Bryophytes**–General characteristics, classification, morphology, anatomy, reproduction and life-cycles of Hepaticopsida, Anthocerotopsida and Bryopsida. Ecological and Economic importance of Bryophytes.

**Unit–III** **12 h**

**Pteridophytes-** General characteristics, classification; morphology, anatomy, reproduction and life-cycles in Psilopsida, Lycopsida, Spenopsida and Pteropsida, Economic importance of Pteridophytes. Telome theory, Heterospory and seed habits, Stelar evolution in pteridophytes

**Unit–IV** **12 h**

**Gymnosperms-** General characteristics, classification, morphology, anatomy, reproduction and life-cycles in Cycadopsida, Coniferopsida and Gnetopsida. Economic importance of Gymnosperms.

**Geological Time scale:** Origin and evolution of plants through Geological Time scale. **Paleobotany**-Preservation of plant fossils-impressions, compressions, petrification, moulds and casts.

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13. Stewart, W.M. 1983. Paleobotany and the Evolution of Plants, Cambridge University Cambridge.

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## Course DSC 1B (Practical): Diversity of Non-Flowering Plants

(Credits-2, No. of teaching hours-48 & 4h/week)

1: Study of Marine algae- *Diatoms, Sargassum,* and *Polysiphonia*

2: Study of fresh water algae- *Spirulina, Oedogonium, Chara,.*

3: Study of *Riccia, Anthoceros,Funaria.*

4: Study of *Lycopodium, Selaginella, Equisetum, Marsilea &Nephrolepis*

5: Study of *Cycas, Pinus* and *Gnetum.*

6: Study of *Rhynia & Lepidodendron.*

7: Algal Cultivation

8: Study of plant fossils.

**(Note: Field visit report and submission of two specimens are compulsory)**

**Gulbarga University, Kalburagi**

**B.Sc.- II SEMESTER PRACTICAL EXAMINATION,----- YEAR**

**Subject: BOTANY**

## Course DSC 2B: Diversity of Non-Flowering Plants

**Time:3 Hours** **Max. Marks: 40**

| | |
|---|---|
| Q.**I.** Identify, classify and write salient features of specimens **A, B, C & D** | **12 Marks** |
| Q. **II.** Perform minor experiment **'E'**. Show the preparation to the examiners. | **02 Marks** |
| Q.**III.** Identify and describe anatomical features of **F** and **G** | **06 Marks** |
| Q.**IV.** Identify and comment on the given slides/specimen **H, I, J, K** and **L** | **10 Marks** |
| **Q.V.** Viva voce | **02 Marks** |
| Q.**VI.** Submission | |
| i. Study Tour Report | **05 Marks** |
| ii. Practical Record | **03 Marks** |

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## General instructions to the examiners

Q1. Give specimen from Algae, Bryophytes, Pteridophytes, and Gymnosperms, **A, B, C,** and **D.**

Q2. Preparation and analysis of material Algae/ Bryophytes, **E.**

Q3. **F-** Pteridophytes & Gymnosperms-**G**

Q4. Identify and write the features in the slides/specimen **H, I, J, K** and **L**

From Algae, Bryophytes, Pteridophytes, Gymnosperms and Paleobotany

Q5. Viva Voce

Q6. Submissions
i. Study Tour Report
ii. Practical Record

**Continuous Internal Assessment/Formative Assessment**

**Major Courses theory internal.**

| SL.NO | **Continuous Internal Assessment /Assessment Programme.** | Maximum Marks 20 |
|---|---|---|
| 1 | Two session tests with proper record for assessment (5+5=10) | 10 |
| 2 | Assessment of skill development activities/seminars/ group discussions/assignment etc. with proper record | 05 |
| 3 | Attendance with proper record | 05 |
| | **Total marks** | **20** |

**Internal Assessment for practicals from I to VI semester.**

| SL.NO | **Internal Assessment** | Maximum Marks. 10 |
|---|---|---|
| 1 | Attendance | 05 |
| 2 | Records | 05 |
| | **Total marks** | **10** |

THEORY EXAMINATION QUESTION PAPER PATTERN FOR BOTANY (SEMESTER, I to VI)

**B.Sc.----- Semester Degree Theory Examination,---- Year**

(New Scheme)

**Subject: Botany**

Course Code: ------ Course title: ----------

**Time: 3 Hrs** **Max. Marks:80**

**Instruction to the candidates:**

1) All sections are compulsory
2) Draw neat and labeled Diagrams wherever necessary

**Section-A**

**Q I. Answer the following questions in one or two sentences** **(2x5= 10)**

1. a
1. b
1. c
1. d
1. e

**Section-B**

**Q II. Write short notes on any SIX of following questions** **(5x6=30)**

2
3
4
5
6
7
8
9

**Section-C**

**Q . Answer any FOUR of following questions** **(4x10=40)**

10

11

12

13

14

15